Revision 1

Store at -20C
#2187

Phospho-CENP-A (Ser7) Antibody

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source:	UniProt ID:	Entrez-Gene Id:
WB, IP, IF-IC	H	Endogenous	17	Rabbit	#P49450	1058

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:25
Immunofluorescence (Immunocytochemistry)	1:100

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. Do not aliquot the antibody.

Specificity / Sensitivity

Phospho-CENP-A (Ser7) Antibody detects endogenous levels of human CENP-A protein only when phosphorylated on Ser7. This antibody does not cross-react with other histone proteins, including Histone H3.

Species predicted to react based on 100% sequence homology:

Monkey

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Ser7 of human CENP-A protein. Antibodies are purified by peptide affinity chromatography.

Background

Modulation of chromatin structure plays a critical role in the regulation of transcription and replication of the eukaryotic genome. The nucleosome, made up of four core histone proteins (H2A, H2B, H3, and H4), is the primary building block of chromatin. In addition to the growing number of post-translational histone modifications regulating chromatin structure, cells can also exchange canonical histones with variant histones that can directly or indirectly modulate chromatin structure (1). CENP-A, also known as the chromatin-associated protein CSE4 (capping-enzyme suppressor 4-p), is an essential histone H3 variant that replaces canonical histone H3 in centromeric heterochromatin (2). The greatest divergence between CENP-A and canonical histone H3 occurs in the amino-terminal tail of the protein, which binds linker DNA between nucleosomes and facilitates proper folding of centromeric heterochromatin (3). The amino-terminal tail of CENP-A is also required for recruitment of other centromeric proteins (CENP-C, hSMC1, hZW10), proper kinetochore assembly and chromosome segregation during mitosis (4). Additional sequence divergence in the histone fold domain is responsible for correct targeting of CENP-A to the centromere (5). Many of the functions of CENP-A are regulated by phosphorylation (6,7). Aurora A-dependent phosphorylation of CENP-A on Ser7 during prophase is required for proper targeting of Aurora B to the inner centromere in prometaphase, proper kinetochore/microtubule attachment and proper alignment of chromosomes during mitosis (6).

Background References

1. Jin, J. et al. (2005) *Trends Biochem Sci* 30, 680-7.
2. Ausió, J. (2006) *Brief Funct Genomic Proteomic* 5, 228-43.
3. Heit, R. et al. (2006) *Biochem Cell Biol* 84, 605-18.
4. Van Hooser, A.A. et al. (2001) *J Cell Sci* 114, 3529-42.
5. Black, B.E. et al. (2004) *Nature* 430, 578-82.
6. Kunitoku, N. et al. (2003) *Dev Cell* 5, 853-64.
7. Zeitlin, S.G. et al. (2001) *J Cell Biol* 155, 1147-57.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

WB: Western Blotting **IP:** Immunoprecipitation **IF-IC:** Immunofluorescence (Immunocytochemistry)

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster **X:** Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse **GP:** Guinea Pig **Rab:** rabbit **All:** all species expected

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Limited Uses